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T-P

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/723,733	11/28/00	HORTON I	1300-009

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EXAMINER	
THORNTON, K	
ART UNIT	**PAPER NUMBER**
1744	3

DATE MAILED: 07/05/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/723,733	HORTON, ISAAC B.	
	Examiner	Art Unit	
	Krisanne M. Thornton	1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-70 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-70 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15)☒ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other:

DETAILED ACTION

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9, 20-22, 31-32, 35, 47-49, 50, 55, 61 and 64 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 9, 20, 31-32, 35, 47, 55, 61 and 64, the recitation of "the water" lacks proper antecedent basis in these claims.

With respect to claims 21 and 48, "the interface zone" and "the surface zone" lack proper antecedent basis.

With respect to claims 22 and 49, some of the chemical formulas recited are not properly formatted, and the use of "and the like" is found to be vague and indefinite because it is unclear as to what would actually constitute "and the like".

With respect to claim 50, "scalable to applications" is found to be vague and indefinite because it is unclear as to what structural limitation such a recitation would actually require.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 20, 26, 29, 36-37, 53 and 63 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Free U.S. patent No. 4,008,045.

Claims 1-3, 17-19, 26, 29-30, 34-37, 44-45, 48-54 and 63 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Zhang et al., U.S. patent No. 5,501,801.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4-7, 16, 20-25, 27-28, 32-33, 38-43, 61-62, and 64-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al., as applied to above, and further in view of Free.

Zhang et al., teach a fluid treatment method and apparatus applicable to drinking water facilities where a vertical riser configuration and a horizontal tank configuration are provided with application of a separate UV light source. The light source is protected from direct contact with the fluid and the radiation can be manipulated for better contact by transmissive and/or reflective optical means. Within the system is provided a photocatalytic structure for irradiation by the source with concurrent contact with the fluid to be treated. The catalyst includes titanium dioxide as well as several others.

Free teaches a fluid treatment method and apparatus wherein a UV light source is provided for irradiating a fluid source such as drinking water and wherein a diffuser structure is provided to enhance turbulence in the system as well as the radiation contact zone for more efficient sterilization of the fluid. The diffuser structure can be provided in a stair step configuration and Free teaches the desire to provide a flow of the fluid toward the UV at a given rate for effective disinfection.

It would have been obvious to one of ordinary skill in the art to employ a shaped diffuser structure as in Free for the photocatalytic support in Zhang et al., because it would increase the effective irradiation contact with the fluid to be treated.

Claims 8-15, 31 and 55-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al., and Free as applied to claims 1-7, 16-30, 32-54 and 61-70 above, and further in view of any one of Riser et al., U.S. patent Nos. 5,911,020 or 5,857,041.

Each of Riser et al., teach the known conventionality of the use of fiber optics in the transmission of light from a source to a zone of treatment/irradiation.

It would have been obvious to one of ordinary skill in the art to include the fiber optic means of any of the above patents in the combination of Zhang et al., and Free for the known conventionality of light transmission and application thereof.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-70 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-32 and 1-74 of copending Application No. 09/630245 and 09/723679 respectively. Although the

conflicting claims are not identical, they are not patentably distinct from each other because they are of the same inventive concept.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krisanne M. Thornton whose telephone number is 703-308-3914. The examiner can normally be reached on Mon.-Wed. 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Warden can be reached on 703-308-2920. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7718 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

KRISANNE THORNTON
PRIMARY EXAMINER

June 27, 2001